quired by the Act itself. According to the Act's "Declaration of Policy," the warning was required so that "the public may be adequately informed that cigarette smoking may be hazardous to health." The day after the Act was signed into law, the FTC issued an order vacating its trade regulation rule (FTC 1965).

The Federal Cigarette Labeling and Advertising Act also required that the FTC transmit annually to Congress a report on the effectiveness of cigarette labeling, current cigarette advertising and promotion practices, and recommendations for legislation. In its first report to Congress, submitted in June 1967, the FTC recommended that the health warning be extended to cigarette advertisements and be strengthened to read: "Warning: Cigarette Smoking Is Dangerous to Health and May Cause Death from Cancer and Other Diseases" (FTC 1967). On May 20, 1969, just before expiration of the congressionally imposed moratorium on its action, the FTC announced a proposed rule that would have required all cigarette advertisements "to disclose, clearly and prominently, ... that cigarette smoking is dangerous to health and may cause death from cancer, coronary heart disease, chronic bronchitis, pulmonary emphysema, and other diseases" (FTC 1969a).

During this time, hearings were being held in Congress on cigarette labeling and advertising issues. On April 1, 1970, the Public Health Cigarette Smoking Act of 1969 (Public Law 91-222), which banned cigarette advertising on television and radio, was signed into law. The labeling provisions of this law, like its predecessor's, were less stringent than the FTC regulations they preempted. The Act (effective November 1, 1970) did strengthen the health warning on cigarette packages to read: "Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health." However, it continued to prohibit any other health warning requirement for packages and to prohibit the FTC (through June 1971) from issuing regulations that would require a health warning in cigarette advertising.

In late 1971, after the second congressionally mandated moratorium on its actions had expired, the FTC announced its intention to file complaints against cigarette companies for failure to warn in their advertising that smoking is dangerous to health. Subsequent negotiations between the FTC and the cigarette industry resulted in consent orders on March 30, 1972, requiring that all cigarette advertising display "clearly and conspicuously" the same warning required by Congress on cigarette packages (FTC 1981b).

The 1972 consent order specified the type size of the warning in newspaper, magazine, and other periodical advertisements of various dimensions. For billboard advertisements, the size of the warnings was specified in inches (FTC 1972). In 1975, the U.S. Government filed a complaint in the U.S. District Court for the District of Columbia for alleged violations of the consent order, including failure to display the health warning in some advertising, billboard warnings in letters smaller than required, and improper placement of the warning in some advertisements (FTC 1982). This action ultimately led to judgments in 1981 by the U.S. District Court for the Southern District of New York against the six major cigarette companies (*U.S.A.* v. *Liggett et al.* 1981; *U.S.A.* v. *R.J. Reynolds* 1981). Among other things, these judgments required the cigarette companies to use larger lettering in billboard advertisements. Under this settlement, the format and size of the warning for advertisements of various dimensions

TABLE 2.—Major legislation related to information and education about tobacco and health in the United States

Law	Date	Major provisions and Federal agency affected			
		Labeling requirements	Advertising	Congressional reporting requirements	Other
Federal Cigarette Labeling and Advertising Act (PL 89-92)	1965	Health warning on cigarette packages Preempted other package warnings Temporarily preempted any health warning on cigarette advertisements (FTC)		Annual report to Congress on health consequences of smoking (DHEW) Annual report to Congress on cigarette labeling and advertising (FTC)	
Public Health Cigarette Smoking Act (PL 91-222)	1969	Strengthened health warning on cigarette packages Preempted other warnings on packages Temporarily preempted FTC requirement of health warning on cigarette advertisements[a] (FTC)	Prohibited cigarette advertising on television and radio (DOJ) Preempted any State or local requirement or prohibition based on smoking and health with respect to cigarette advertising or promotion	Annual report to Congress on health consequences of smoking (DHEW) Annual report to Congress on cigarette labeling and advertising (FTC)	
Little Cigar Act (PL 93-109)	1973		Extended broadcast ban on cigarette advertising to "little cigars" (DOJ)		

TABLE 2.—Continued

Law	Date	Major provisions and Federal agency affected			
		Labeling requirements	Advertising	Congressional reporting requirements	Other
Comprehensive Smoking Education Act (PL 98-474)	1984	Replaced previous health warning on cigarette packages and advertisements[a] with system requiring rotation of four specific health warnings Preempted other package warnings		Biennial status report to Congress on smoking and health (DHHS)	Created the Federal Interagency Committee on Smoking and Health (DHHS) Cigarette industry must provide a confidential list of cigarette additives[c] (DHHS)
Comprehensive Smokeless Tobacco Health Education Act (PL 99-252)	1986	Rotation of three health warnings on smokeless tobacco packages and advertisements (in circle-and-arrow format on advertisements) Preempted any other health warning on smokeless tobacco packages or advertisements (except billboards)	Prohibited smokeless tobacco advertising on television and radio (DOJ)	Biennial status report to Congress on smokeless tobacco (DHHS) Biennial report to Congress on smokeless tobacco sales, advertising, and marketing practices (FTC)	Required public information campaign on health hazards of using smokeless tobacco (DHHS)[b] Smokeless tobacco companies must provide a confidential list of additives and a specification of nicotine content in smokeless tobacco products (DHHS)[c]

NOTE: DHEW, Department of Health, Education, and Welfare (now the Department of Health and Human Services (DHHS)); FTC, Federal Trade Commission: DOJ, Department of Justice.

[a]The requirement for a health warning on cigarette packages was extended to cigarette advertisements by an FTC consent order in 1972 (see text).

[b]No funds have been appropriated to carry out this campaign.

[c]List of additives does not identify company or cigarette brand. No public disclosure of additives on packages or advertisements required and no other public disclosure allowed.

were specified in acetate exhibits that are maintained on file at the FTC. The Comprehensive Smoking Education Act of 1984 (Public Law 98-474) again increased the size of the letters, but in the case of billboard ads, it did so only by requiring that all letters be uppercase. This Act was the first to codify into law the requirement for and the sizes of the warnings on ads.

In 1981, the FTC sent a staff report to Congress that concluded that the warning appearing on cigarette packages and in advertisements was no longer effective. The report noted that the warning did not communicate information on the significant, specific risks of smoking and concluded that the warning had become overexposed and "worn out" (FTC 1981b). The report recommended changing the shape of the warning to a circle-and-arrow format (for example, see Figure 1), increasing the size of the warning, and replacing the existing warning with a system of short rotational warnings.

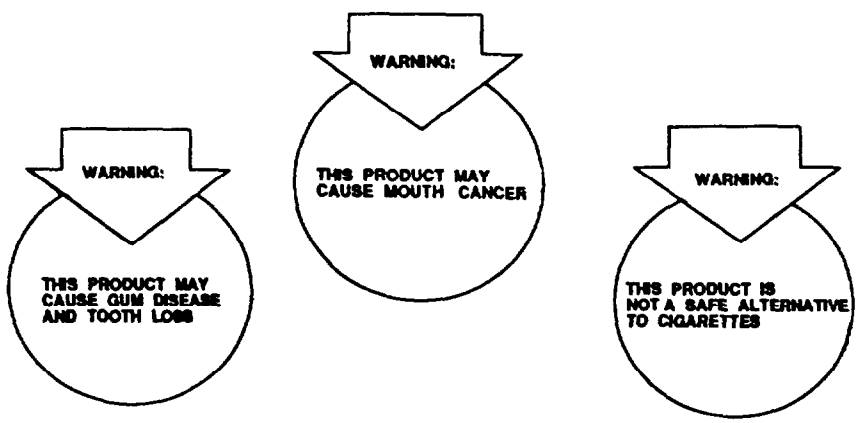

FIGURE 1.—Health warnings required for smokeless tobacco advertisements (except billboards)

Some of these recommendations were enacted by Congress as part of the Comprehensive Smoking Education Act (Public Law 98-474), which was signed into law on October 12, 1984. Effective October 12, 1985, it required cigarette companies to rotate four warnings on all cigarette packages and in advertisements (see Table 3). This was the first time that health warnings on cigarette advertisements were the result of legislative rather than regulatory action. The four warnings mandated for cigarette advertisements on outdoor billboards were slightly shorter versions of the messages required in other advertisements and on packages. The Act did not amend the existing prohibition of any other health warnings on cigarette packages and the preemption of State action, but it did not impose a similar preemption of other health warnings by Federal authorities in cigarette advertising.

The Comprehensive Smoking Education Act of 1984 required each cigarette manufacturer to obtain FTC approval for its plans to implement the rotational warning

TABLE 3.—Health warnings required on tobacco packages and advertisements in the United States.

CIGARETTES

Warning(s)	Effective dates	Applicability	
		Packages	Advertisements
CAUTION: Cigarette Smoking May Be Hazardous to Your Health.	January 1, 1966–October 31, 1970	X	
WARNING: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health.	November 1, 1970–October 11, 1985	X	
	1972–October 11, 1985		X[a]
SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy. SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health. SURGEON GENERAL'S WARNING: Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight. SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.	October 12, 1985–present	X	X[b]

SMOKELESS TOBACCO

Warnings	Effective dates	Applicability	
		Packages	Advertisements
WARNING: This product may cause mouth cancer. WARNING: This product may cause gum disease and tooth loss. WARNING: This product is not a safe alternative to cigarettes.	February 27, 1987–present	X	X[c]

[a]Required by Federal Trade Commission consent order. All other warnings required by Federal legislation.

[b]The four warnings mandated for cigarette advertisements on outdoor billboards are slightly shorter versions of the same messages.

[c]The warnings on advertisements must appear in a circle-and-arrow format (see Figure 1). No warnings are required on outdoor billboards.

system. Legislation was subsequently enacted that permitted certain smaller manufacturers and importers to display simultaneously all four warnings on packages instead of by quarterly rotation (Nurse Education Amendments of 1985, Section 11, amending section 4(c) of the Federal Cigarette Labeling and Advertising Act, 15 U.S.C. 1333(c)). This practice is now followed by 20 to 25 small manufacturers and importers.

More recently, Congress has extended requirements for warning labels to smokeless tobacco products. In early 1986, two national review groups, a National Institutes of Health Consensus Development Conference (US DHHS 1986a) and the Surgeon General's Advisory Committee on the Health Consequences of Using Smokeless Tobacco (US DHHS 1986c), issued reports concluding that smokeless tobacco can cause oral cancer and a number of noncancerous oral conditions. Between 1985 and 1986, the State of Massachusetts adopted legislation requiring warning labels on packages of snuff, and 25 other States considered similar legislation (Connolly et al. 1986).

The Massachusetts law was preempted before it took effect by the Federal Comprehensive Smokeless Tobacco Health Education Act of 1986 (Public Law 99-252), which was signed into law on February 27, 1986. The Act requires one of three warnings to be displayed on all smokeless tobacco packages and advertisements (except billboards) (Table 3). It requires that the three package warnings "be randomly displayed ... in each 12-month period in as equal a number of times as is possible on each brand of the product and be randomly distributed in all parts of the United States in which such product is marketed." On advertisements, the law requires rotation of each warning every 4 months for each brand. The warnings on advertisements are required to appear in the circle-and-arrow format recommended earlier by the FTC for cigarette warnings (FTC 1981b) (Figure 1). The Act prohibits Federal agencies or State or local jurisdictions from requiring any other health warnings on smokeless tobacco packages and advertisements (except billboards). No other Federal, State, or local actions were preempted by the Act. The FTC issued regulations implementing the law on November 4, 1986 (FTC 1986b).

Package inserts provide the opportunity to present more detailed information to the consumer than is possible with a warning label. They are a standard way of providing consumers with information about pharmaceutical products, but they have not been proposed for tobacco products in the United States. When used for prescription pharmaceuticals, patient package inserts have been generally effective in providing patients with information (US DHHS 1987d; Morris, Mazis, Gordon 1977) but have not been demonstrated to be effective in altering behavior (Dwyer 1978; Morris and Kanouse 1982). Information about smoking risks is included in the package insert for one class of pharmaceutical agents marketed in the United States. After several studies published between 1975 and 1977 reported that smoking increases the cardiovascular disease risks associated with oral contraceptive use (US DHEW 1978), the Food and Drug Administration (FDA) issued a regulation on January 31, 1978 requiring that as of April 3, 1978, packages of oral contraceptives contain a printed leaflet with the following boxed warning:

> Cigarette smoking increases the risk of serious adverse effects on the heart and blood vessels from oral contraceptive use. This risk increases with age and with heavy smoking (15

or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should not smoke (FDA 1978).

The information provided to consumers of another nicotine-containing product contrasts with the information provided to consumers of tobacco products. The patient package insert for nicotine polacrilex gum, a nicotine-containing product approved by the FDA as an adjunct to smoking cessation programs, informs users of the addictiveness of nicotine and its potential effects on the fetus (US DHHS 1988). The product insert does not mention the risks of cigarette smoking, but it does state: "Warning to female patients: Nicorette contains nicotine which may cause fetal harm when administered to a pregnant woman. Do not take Nicorette if you are pregnant or nursing." The insert also warns that dependence on Nicorette "may occur when patients who are dependent on the nicotine in tobacco transfer that dependence to the nicotine in Nicorette gum."

Effectiveness of Cigarette Warning Labels

In May 1987, the Assistant Secretary for Health, Department of Health and Human Services, transmitted a report to Congress on the effects of health warning labels (US DHHS 1987d). Based on a review of the research literature, the report reached three major conclusions. First, health warning labels can have an impact on consumers if designed to take account of factors that influence consumer response to warning labels (e.g., a consumer's previous experience with the product, previous knowledge of the risks associated with product use, and education and reading levels). Second, health warning labels can have an impact upon the consumer if the labels are designed effectively (e.g., visible format and providing specific rather than general information). Third, studies that have examined the impact of health warning labels in "real world" situations have concluded that the labels did have an impact on consumer behavior. The report cautioned, however, that the results of these studies "cannot be regarded as conclusive evidence that health warning labels are necessarily effective in all situations." This Section reviews evidence related to the effectiveness of cigarette warning labels in the United States.

As noted above, the Federal Cigarette Labeling and Advertising Act of 1965 (Public Law 89-92), which required the first warning label on cigarette packages, stated that the health warning was required so that "the public may be adequately informed that cigarette smoking may be hazardous to health." More specific communications objectives were not set by legislation mandating warning labels. Generally, however, the goal of warning labels has been to increase public knowledge about the hazards of cigarette smoking. Such knowledge might deter individuals from starting or continuing to smoke.

Despite the fact that cigarette warning labels have been required since 1966, there are few data about their effectiveness in meeting any objective. As described below, empirical evidence is available about the cigarette warnings' visibility to consumers, and it is consistent with analyses based on communications theory. However, there are no controlled studies to permit a definitive assessment of the independent impact of

cigarette warning labels on knowledge, beliefs, attitudes, or smoking behavior. In particular, there has been little evaluation of the impact of the rotating warning labels required since 1985.

If warning labels are to have any effect, they must actually appear on packaging and in advertising as required by law. Available evidence indicates that the tobacco industry has complied with disclosure obligations. For example, a study examining health warnings in magazine ads as an indicator of the industry's compliance with the 1984 labeling legislation found that the industry complied with the law (Davis, Lyman, Binkin 1988). The U.S. Department of Justice is empowered to enforce the disclosures required by the various labeling laws. According to the FTC (FTC 1967, 1969b, 1974, 1982, 1986a, 1988a,b) no actions have been brought by the Department of Justice for violations of labeling regulations, and the Commission has brought no action for failure to include the warnings in advertising (with the exception of the billboard and transit advertising enforcement proceedings discussed above). As of October 1988, no action had been sought against a cigarette manufacturer for a violation of the Comprehensive Smoking Education Act of 1984.

Despite the industry's compliance with the required warning labels, there is empirical evidence that the public did not pay much attention to the pre-1985 labels in advertisements; little information is available about the visibility of warning labels on packaging. In a Starch Message Report Service test of 24 different magazines in 1978, only 2.4 percent of the adults exposed to the cigarette ads read the pre-1985 Surgeon General's warning in those ads (FTC 1981b). Similarly, a study of seven Kool ads conducted in 1978 for the Brown and Williamson Tobacco Company found that only 2.4 percent of the respondents read the entire warning; the average time spent examining the warning was less than 0.3 seconds. In an advertising copy test conducted for the Liggett and Meyers Tobacco Company in 1976, no respondents read the entire warning (FTC 1981b). More recent studies of later cigarette and smokeless tobacco advertisements suggest that little attention is paid to the post-1984 health warnings. An eye-movement study examined the rotational cigarette warnings in magazine ads in a sample of 61 adolescents. Over 40 percent of the subjects did not view the warning at all; another 20 percent looked at the warning but did not read it (Fischer et al. 1989). Similarly low levels of warning recall were found for the recently introduced smokeless tobacco warnings (Popper and Murray 1988).

These findings are consistent with analyses of the visual imagery of tobacco advertising, which note that the structures of the ads draw consumers' attention away from the warnings contained in the ads (Richards and Zakia 1981; Zerner 1986). It has also been argued that the sheer volume of cigarette advertising, all applying the basic themes of product satisfaction, positive image associations, and risk minimization (Popper 1986b), overwhelm the in-advertisement warnings (Schwartz 1986).

In some advertising media, the cigarette warnings may not be readable. In a study of cigarette advertisements on 78 billboards and 100 taxicabs, Davis and Kendrick (1989) compared the readability of the Surgeon General's warning with recognition of the content of the cigarette advertisement. Under typical driving conditions, they found that a passing motorist could read the warning in about half of street billboard advertisements and in only 5 percent of highway billboard advertisements. The warn-

ing could not be read by a stationary observer in any of the taxicab advertisements. In contrast, the brand name could be read and notable imagery in the advertisements could be identified in almost all cases. Cullingford and coworkers (1988), using a model to assess the optical limits of the eye, showed that only about half of the health warnings on 37 billboard cigarette advertisements in Australia were legible to passing motorists; on the other hand, 98 percent of the brand names were legible.

Despite these findings, a national survey conducted by Lieberman Research, Inc. (1986) showed moderate recall of the post-1984 warnings 9 months after they began to appear on packages and advertisements. In this random survey of 1,025 Americans 18 years of age and older, 64 percent of all respondents and 77 percent of cigarette smokers said they recalled seeing one or more of the new warnings on cigarette packages. Lieberman concluded that this "represents a high level of penetration in a relatively short time period."

Respondents were also asked whether they recalled seeing each of the four warnings as well as the pre-1985 warning and a fictitious warning ("Smoking reduces life expectancy by an average of 6 years"). Recall of the true warnings ranged from 28 to 46 percent of all respondents (40 to 55 percent of smokers); recall of the carbon-monoxide warning was lowest among the four. Recall of the pre-1985 warning was substantially higher (85 percent of all respondents, 94 percent of smokers). Recall of the fictitious warning was 10 percent for the total sample as well as for smokers. Because the fictitious warning differed in style from the true warnings by presenting quantitative information, it is possible that stated recall of the fictitious warning was lower, at least in part, because of inferences made by respondents (as opposed to genuine differences in recall). The proportion who believed that a particular warning was "very" or "fairly" effective in convincing people that smoking is harmful ranged from 40 percent for the carbon-monoxide warning to 76 percent for the warning about lung cancer, heart disease, emphysema, and complications of pregnancy (the corresponding proportion for the pre-1985 warning was 56 percent).

Analyses of the wording and format of mandated health warnings have identified reasons why their impact may be limited even if they are noticed and read. Use of conditional words such as "can" or "may" anywhere in the warning can dramatically reduce the effect of the entire warning (Linthwaite 1985). Two of the current rotational warnings include the word "may." The other two warnings ("Quitting Smoking Now Greatly Reduces Serious Risks to Your Health" and "Cigarette Smoke Contains Carbon Monoxide") are not warnings but statements of fact; linguistically, consumers might be expected to minimize their impact (Dumas, in press). Furthermore, information in the current warnings is presented technically and abstractly rather than in a concrete and personal manner. A reader is more likely to read and learn information that is made personally relevant as opposed to that which is abstract and technical (Fishbein 1977). Researchers who have addressed the format of warnings have found that consumers' attention will be most effectively caught by novel formats (Cohen and Srull 1980). This line of study has suggested that the communications effectiveness of the post-1984 warnings may have been diminished because the same rectangular shape of the pre-1985 warnings was maintained (Bhalla and Lastovicka 1984).

The analysis of time trends in national survey data provides an opportunity to assess the effect of health warning labels on public knowledge of the health risks of smoking. As described in Chapter 4, public knowledge of these health effects has increased since 1966, when the first health warning label was required. Because warning labels were only one of a number of educational influences during this period, most researchers have concluded that it is impossible to isolate the effect of the warnings from other information sources (US DHHS 1987d; FTC 1974; Murphy 1980). Similarly, it is impossible to determine any independent effect of health warnings on aggregate cigarette sales (FTC 1967, 1969b). In sum, there are insufficient data to determine either the independent contribution of cigarette warning labels to changes in knowledge or smoking behavior or the precise role played by warning labels as part of a comprehensive antismoking effort.

Perhaps the most powerful indirect index of the effect of health warnings, along with other sources of information, is the number of smokers and consumers in general who remain unaware of the health risks of smoking. After a comprehensive review of studies on health risk awareness, including publicly generated studies and those conducted by the tobacco industry, the FTC concluded that significant numbers of consumers in general and even higher numbers of smokers were unaware of even the most rudimentary health risk information about smoking (FTC 1981b). It was this lack of consumer awareness that led the FTC to call for revised and expanded rotational warnings for cigarettes. More recent data reveal that a substantial minority of smokers still does not believe that smoking causes lung cancer, heart disease, emphysema, and other diseases, and the majority of smokers underestimate the degree of increased health risk posed by smoking. (See Chapter 4.)

Summary

As a result of policies described in this Section, a system of rotating health warning labels is currently required for all cigarette and smokeless tobacco packaging and advertisements in the United States. This system, established by congressional legislation in 1984 (for cigarettes) and 1986 (for smokeless tobacco products), achieves a portion of one of the Health Objectives for the Nation for 1990:

> By 1985, the present cigarette warning should be strengthened to increase its visibility and impact, and to give the consumer additional needed information on the specific multiple health risks of smoking. Special consideration should be given to rotational warnings and to identification of special vulnerable groups.

The 1984 Act provided the consumer with some of that "needed information," although the four mandated warnings provide less information than would have been provided by the 16 warnings described to the U.S. Congress in the 1981 FTC Report (FTC 1981b; Keenan and McLaughlin 1982). There is no legislated mechanism for monitoring the visibility or communications effectiveness of existing warning labels, and there are insufficient data to determine whether the visibility and impact of the warnings have increased as a result of the 1984 Act. Furthermore, current legislation does not provide a mechanism for updating the content of labels to reflect advances in

knowledge about health effects and smoking behavior. One example of changing knowledge is the growing scientific awareness of the addictive nature of tobacco use, which was the subject of the 1988 Surgeon General's Report (US DHHS 1988). In that Report, the Secretary of Health and Human Services, the Assistant Secretary for Health, and the Surgeon General recommended that a new health warning label on the addictive nature of tobacco use be required on cigarette and smokeless tobacco packages and advertisements. On the day of the Report's release (May 16, 1988), legislation was introduced in the U.S. Senate that would require a warning to read: "Smoking is addictive. Once you start, you may not be able to stop" (S. 2402). Other bills that include provisions calling for a warning label on addiction have also been introduced in Congress. As of November 1988, this legislation was not enacted.

Currently, labels are not required on cigarettes made for export or on cigarettes manufactured abroad by U.S. tobacco companies. Federal law does not require warning labels on other tobacco products, such as cigars, pipe tobacco, and roll-your-own cigarette tobacco, despite the established health risks associated with cigar and pipe smoking (US DHEW 1979; US DHHS 1982a, 1984; Chapter 2). During the early 1970s, there was particular concern about the health risks for individuals who smoke "little cigars" (US DHEW 1973). In its 1974 report to Congress (FTC 1974), the FTC recommended that the following warning be required on little-cigar packages: "Warning: Smoking Little Cigars May be Dangerous to Your Health if Inhaled and Smoked in the Same Quantities as Cigarettes." The Little Cigar Act of 1973 (Public Law 93-109) extended the broadcast advertising ban for cigarettes to little cigars, but neither this Act nor subsequent legislation extended requirements for health warnings to little cigars (Table 2).

A warning label will appear on cigars and pipe tobacco sold in California, as a result of an agreement reached on October 18, 1988, between tobacco manufacturers and the State of California. Twenty-five tobacco manufacturers, along with eight retailers, had been sued by California's Attorney General for failing to comply with the State's Safe Drinking Water and Toxic Substances Enforcement Act, which requires warnings on all consumer products containing chemicals known to cause cancer or reproductive toxic effects (Wilson 1988a; Kizer et al. 1988). Because existing distribution systems for cigars do not easily permit the labeling of cigars destined only for California, the president of the Cigar Association of America indicated that most cigars sold in the United States would carry warning labels (Wilson 1988a). As of October 1988, the effect of the settlement on warning labels for pipe tobacco sold outside California was unknown.

Tobacco labeling requirements in other countries (Roemer 1982, 1986) provide comparisons for current labeling practices in the United States. Outside the United States, six countries (Finland, Iceland, Ireland, Norway, Sweden, and the United Kingdom) have enacted a rotational warning requirement. A Swedish law, adopted in 1976, requires the rotation of 16 warning statements on cigarette packages. Ireland requires the rotation of three brief, direct statements on cigarette packages and advertisements: "SMOKING CAUSES CANCER," "SMOKERS DIE YOUNG," and "SMOKING KILLS!" In the United Kingdom, one of six rotated warnings indicates smoking-attributable mortality: "More than 30,000 People Die Each Year in the UK from Lung

Cancer." Since 1985, Iceland has required the rotation of pictorial warnings (Figure 2). Several countries also require health warnings on packages of cigars and pipe tobacco. On packages of cigars, cigarillos, and pipe tobacco, for example, Ireland requires the warning: "SMOKING SERIOUSLY DAMAGES YOUR HEALTH." On June 29, 1988, Canada's House of Commons enacted a new labeling law as part of a comprehensive package of smoking restrictions, the Tobacco Products Control Act (House of Commons of Canada 1988). Canada's current cigarette warning labels will be replaced by a mandatory package insert that details all known health risks of smoking.

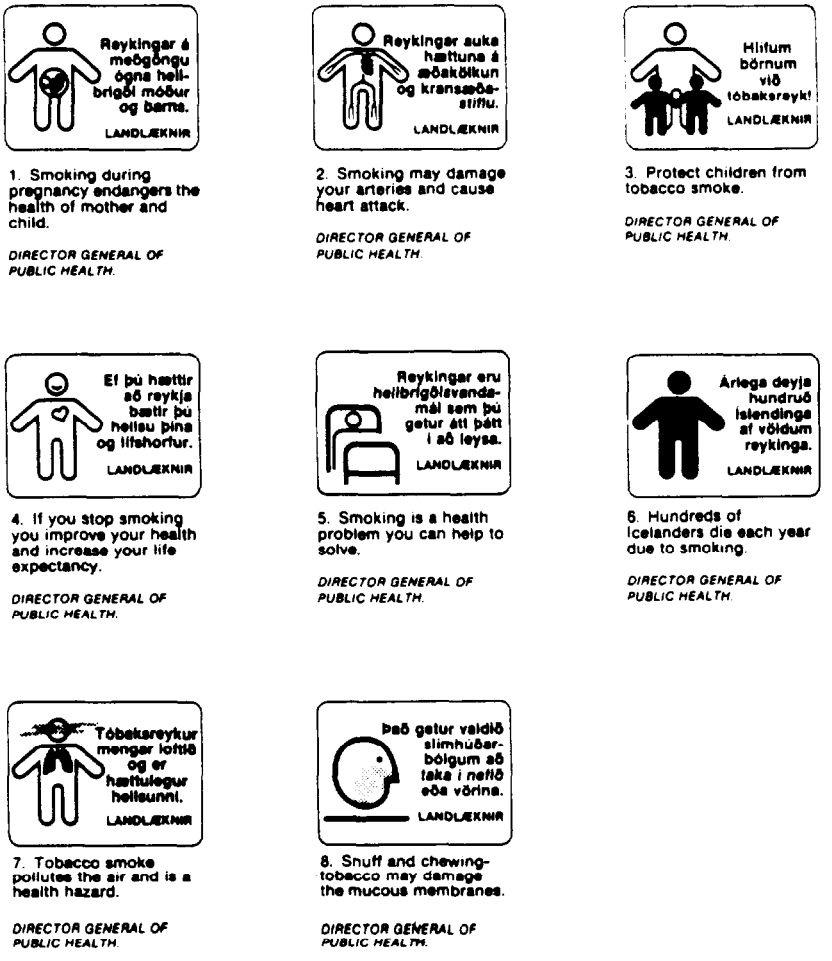

FIGURE 2.—Health warnings on tobacco packages in Iceland according to regulation no. 499/1984

SOURCE: Blondal and Magnusson (1985).

History and Current Status

The FTC has also been concerned with the disclosure, on packaging and in advertising, of information about the constituents of tobacco smoke (e.g., tar, nicotine, and carbon monoxide). More recently, there has also been growing interest in the identity and amounts of other ingredients added to tobacco products during the manufacturing process.

The first industrywide regulation occurred even before the release of the first Surgeon General's Report. In the mid- to late 1950s, many cigarette advertisements made conflicting claims for the tar and nicotine levels of various brands. This period became known as the "Tar Derby" (Wagner 1971a; Whiteside 1971). On September 15, 1955, after a year of conferences with the cigarette industry, the FTC promulgated cigarette advertising guidelines "for the use of its staff in the evaluation of cigarette advertising" (FTC 1964b). These guidelines, among other things, sought to prohibit cigarette advertising that made unsubstantiated claims about the level of nicotine, tars, or other substances in cigarette smoke. By 1960, the FTC obtained agreements from the leading cigarette manufacturers to eliminate from their advertising unsubstantiated claims of tar and nicotine content (FTC 1964b).

As the previous section noted, the FTC proposed three rules addressing cigarette labeling and advertising shortly after the release of the 1964 Surgeon General's Report (FTC 1964a). The third proposed rule provided that:

> No cigarette advertisement shall contain any statement as to the quantity of any cigarette-smoke ingredients (e.g., tars and nicotine) which has not been verified in accordance with a uniform and reliable testing procedure approved by the FTC.

This recommendation was not among the final regulations promulgated by the FTC nor in subsequent congressional legislation.

Shortly after passage of the Federal Cigarette Labeling and Advertising Act of 1965, the FTC identified a uniform testing system for measuring the tar and nicotine yield of cigarettes (Pillsbury et al. 1969; see Chapter 5). The FTC determined that meaningful disclosure of tobacco product constituents required the availability of accurate information obtained by standardized testing methods. In 1966, the Commission sent a letter to U.S. cigarette manufacturers approving their factual statements of tar and nicotine content in advertising, if based on tests conducted using the approved method. In 1967, the FTC activated its own laboratory to analyze the tar and nicotine content of cigarette smoke. At the request of the Chairman of the Senate Commerce Committee, the FTC began to test and report periodically to Congress the tar and nicotine content of various cigarette brands (FTC 1981a). In 1981, the FTC first published carbon monoxide yields, based on its own laboratory tests, along with data on tar and nicotine yields (FTC 1981a).

In 1983, the FTC determined that its testing procedures may have "significantly underestimated the level of tar, nicotine and carbon monoxide that smokers received from smoking" certain low-tar cigarettes and sought comments pursuant to modifying its testing procedures (FTC 1988a). One cigarette brand, Barclay, manufactured by the

Brown and Williamson Tobacco Company, was permanently enjoined from including in its advertising, packaging, or promotion the tar rating the brand received using the FTC test methods because of problems with the testing methodology and consumers' possible reliance on that information (*FTC* v. *Brown and Williamson* 1983).

On April 15, 1987, the FTC announced the closing of its in-house laboratory that tested cigarettes for tar, nicotine, and carbon monoxide levels. The FTC attributed its decision to the cost of running the laboratory and the fact that the information was available from the cigarette industry's laboratories, whose methodology was identical to that used by the FTC. The FTC stated that it would collect tar, nicotine, and carbon monoxide ratings from the industry for inclusion in its annual report to Congress pursuant to the Federal Cigarette Labeling and Advertising Act (FTC 1987; MacLeod 1987).

As a result of these actions, a mechanism has been in place whereby information about tar, nicotine, and carbon monoxide yields of cigarettes becomes part of the public record. However, this information is not as readily accessible to consumers as it would be if it were disclosed on all packages of tobacco products or in advertising. Recommendations for uniform disclosure of cigarette constituents have been made previously by the FTC and the Department of Health and Human Services, and a specific goal was set by the Public Health Service's 1990 Health Objectives for the Nation (US DHHS 1986d):

> By 1985, tar, nicotine, and carbon monoxide yields should be prominently displayed on each cigarette package and promotional material.

In 1981, the Department of Health and Human Services (DHHS) recommended that "manufacturers should list yields of 'tar', nicotine and other hazardous components on their packages and in their advertising with appropriate explanatory information on the health significance of these measurements" (US DHHS 1981a (transmittal letter)). As early as 1969, the FTC (FTC 1969b) recommended that disclosure of tar and nicotine yields be required on cigarette packages as well as in advertisements. The next year, the FTC proposed a regulation requiring cigarette companies to disclose the tar and nicotine content of cigarette brands in their advertisements, based on the most recent FTC test results (FTC 1970). The FTC suspended this proceeding to allow the major manufacturers to implement a voluntary plan for such disclosure. Since 1971, all manufacturers have complied with this plan and voluntarily disclose the tar and nicotine content of cigarette brands in advertisements (FTC 1981b).

There is no industrywide disclosure of tar and nicotine content on cigarette packages; such disclosure is often made voluntarily for cigarettes yielding 8 mg or less of tar but rarely for higher tar brands (unpublished data, Office on Smoking and Health 1988). Carbon monoxide yields are neither required nor voluntarily disclosed on packages or in advertising, despite a 1982 FTC recommendation that they be required on cigarette packages (Muris 1982). Currently, there are no government requirements for the disclosure of tobacco smoke constituents to consumers, although, as noted above, levels of some constituents are disclosed voluntarily in advertisements and on some packages by cigarette manufacturers.

In addition to tobacco, tobacco products contain other ingredients added in the process of manufacture. The identity of these additives is regarded as confidential information by manufacturers. The Comprehensive Smoking Education Act of 1984 and the Comprehensive Smokeless Tobacco Health Education Act of 1986 required, for the first time, that the manufacturers, packagers, and importers of cigarettes and smokeless tobacco products provide annually to the Secretary of Health and Human Services a list of additives used in the manufacture of these products. The Secretary is required to treat the lists as "trade secret or confidential information," but may report to Congress on research activities about the health risks of these additives and may call attention to "any ingredient which in the judgment of the Secretary poses a health risk to cigarette smokers" (Public Law 98-474, Public Law 99-252). However, the Secretary is granted no specific authority to regulate any such hazardous products. Regulations describing the procedures for protecting the confidentiality of this information have been published (US DHHS 1985a). Analysis of the information on cigarette additives is in progress.

Federal legislation on smokeless tobacco (Public Law 99-252) now requires that manufacturers provide to the Secretary of Health and Human Services a specification of the nicotine content of smokeless tobacco products, but it does not require that nicotine content be listed on packages or in advertisements. Currently, one brand of smokeless tobacco is marketed as "light" snuff, and the nicotine content is disclosed on its packaging and advertising.

Effects of Disclosure of Tobacco Product Constituents

Current Federal law neither requires the disclosure of tobacco product or tobacco smoke constituents on packages and advertising, nor provides for the monitoring of communications effects of voluntary disclosures. The principal public health rationale for requiring disclosure is to inform consumers about the amount of hazardous substances to which they are exposed, so that consumers will be better informed and so that those who do not abstain completely may be able to reduce their health risks by selecting a brand with a lower concentration of hazardous substances.

There is some information that this has occurred. As noted in Chapter 5, the rapid growth in the market share of cigarettes with reduced tar and nicotine yields during the 1970s indicates that consumers can and will make choices based on information about tobacco constituents (US DHHS 1981a). However, there is no clear evidence of substantial health benefits to consumers who switch to lower tar and nicotine cigarettes. The potential health benefit to smokers of making such discriminations is at best limited, because there is no known safe level of tobacco product consumption (US DHHS 1981a). As mentioned in Chapter 5, concerns about low-yield cigarettes center around: (1) compensatory smoking behavior among smokers who switch to low-nicotine brands, which might even increase total tobacco smoke intake in some smokers; (2) the increased use of additives with possible adverse health effects in low-yield cigarettes; and (3) the possibility that some smokers who believe these cigarettes to be safe or less hazardous will be less inclined to quit.

It is also possible that if smokers saw a more complete listing of the harmful constituents of tobacco on packages or in ads, some would stop smoking rather than mere-

ly choosing a different brand. Evidence to test this hypothesis has not been collected. The impact of informing smokers about the identity of tobacco product additives, about which consumers know little, is unknown. It is possible that this information might encourage smokers to stop smoking, or at least to reduce their daily cigarette consumption.

Mandated Education About Health Risks

Government activities to educate the public on smoking and health are not limited to product-oriented warnings to the tobacco consumer. Government policy has required schools to educate students and teachers about the health hazards of tobacco use. Educational messages in the broadcast media were also mandated by Federal policy from 1967 through 1970.

School Education

Current Status

Both public and private efforts to reduce the initiation of smoking by children have targeted schools. Education on tobacco and health may be provided voluntarily in school curricula or may be required by legislation or regulation. For the purposes of this review, such education is considered voluntary if it is based on a decision of the individual teacher or on an action taken by an individual school or school district. A "policy" refers to Federal or State legislation or regulation mandating instruction on tobacco and health. Voluntary initiatives on school education on smoking and health are considered in Chapter 6. Policies restricting smoking in schools by students and teachers are reviewed in Part III of this Chapter.

The Federal Government has taken no action to mandate education on tobacco in the Nation's schools. Federal legislation was introduced in the 100th Congress (Adolescent Tobacco Education and Prevention Act, H.R. 3658; Atkins 1987) that would require tobacco to be included in drug abuse and education programs established under Sections 4124-4125 of the Drug-Free Schools and Communities Act of 1986 (Public Law 99-750), but this legislation was not enacted. The Surgeon General, the Secretary of Health and Human Services, and the Assistant Secretary for Health have recommended that prevention of tobacco use be included, along with instruction on illicit drug use, in school health education curricula (US DHHS 1988).

A number of States have enacted laws mandating education about smoking and health in schools. The usual content of mandated instruction is the health effects of tobacco use, often included as a component of general health education or a drugs-and-alcohol curriculum. Few school-based educational programs provide education on cessation methods for students who have already started to smoke (Chapter 6). Policies may require the education of either students or teachers, the latter sometimes as a prerequisite to receiving a teaching certificate.

TABLE 4.—State requirements for school health education on drugs/alcohol/tobacco (1974–81) and on tobacco use prevention (1987)

State	State requirement for instruction in drugs/alcohol/tobacco[a]			State requirement for instruction in tobacco prevention
	1974	1977–1978	1981	1987
Alabama		M	M	M
Alaska				
Arizona	O	O	O	M
Arkansas	M	M	M	M
California	M	M	M	
Colorado	M	M	M	
Connecticut	M	M	M	
Delaware	M	M	M	M
District of Columbia	M	M	M	M
Florida	M	M	M	
Georgia	M	M	M	M
Hawaii	M	M	M	M
Idaho	M	M	M	
Illinois	M	M	M	M
Indiana	M	M	M	
Iowa	M	M	M	
Kansas				
Kentucky		M	M	
Louisiana	M-S	M-S	M	
Maine				M
Maryland	M	M	M	
Massachusetts				
Michigan	M	M	M	
Minnesota	M	M	M	
Mississippi			M	
Missouri	M	O	O	
Montana	M-S			
Nebraska			M	M
Nevada				M
New Hampshire	M	M	M	
New Jersey	M-S	M-S	M-S	
New Mexico	M	O	M	
New York	M	M	M	M

TABLE 4.—Continued

	State requirement for instruction in drugs/alcohol/tobacco[a]			State requirement for instruction in tobacco prevention
	1974	1977–1978	1981	1987
North Carolina	M	M	M	M
North Dakota	M	M	M	
Ohio	M	M	M	M
Oklahoma				
Oregon		M	M	
Pennsylvania	M	M	M	
Rhode Island		M	M	M
South Carolina	M	M	M	
South Dakota				
Tennessee	M	M	M	M
Texas	M	M	M	M
Utah	M	M	M	M
Vermont	M	M	M	
Virginia	M	M	M	M
Washington	M	M	M	
West Virginia				M
Wisconsin	M	O	M	
Wyoming				
TOTAL (mandatory)	35	35	39	20

NOTE: Thirty-four States required instruction in drugs/alcohol/tobacco in 1985. The individual States were not identified in the report (ASHA 1987).

[a]M, mandated; O, optional/permissive; S, secondary school level. Unless otherwise noted, policies refer to both elementary and secondary levels.

SOURCE: ASHA (1976, 1979, 1981); Lovato, Allenworth, Chan, in press.

Surveys of State requirements for school health education for the years 1974, 1977, 1978, 1981, 1985, and 1987 have been conducted by the American School Health Association (ASHA 1976, 1979, 1981, 1987; Lovato, Allensworth, Chan, in press). Questionnaires were sent to State school health consultants, when identifiable, or to State commissioners of education or health. Between 1974 and 1985, the number of States (including the District of Columbia) mandating school education in the category labeled "drugs/alcohol/tobacco" varied from 34 to 39, with no clear trend over time (Table 4; data not shown for 1985, for which only the total number of States—34—was provided). In fact, several States apparently weakened or repealed preexisting requirements. In most jurisdictions, the requirement pertained to both elementary and secondary school levels. The extent to which education in this broad category specifically

required tobacco education is unknown. The results do not suggest that the number of States requiring instruction on the health effects of tobacco use is increasing. In the 1987 survey, mandated curriculum on tobacco use was reported separately from curricula on drug and alcohol use. The prevention of tobacco use is mandated curriculum in 20 States (Lovato, Allensworth, Chan, in press).

A separate survey of State legislation enacted as of December 1985 reported similar findings. It found that 18 of 21 States providing data required elementary and secondary schools to include instruction on the dangers of using tobacco as part of their health education programs (Table 5) (US DHHS 1986e).

Several States also require teacher training. Three States (Alabama, Connecticut, and Oklahoma) have directed their departments of education to establish and implement in-service training programs to educate teachers, school administrators, and other school personnel about the effects of nicotine or tobacco use. All educational institutions in Minnesota that provide teacher training must offer programs on the use of and dependence on tobacco. Connecticut law requires universities that train teachers to provide instruction on the effects of nicotine and tobacco use and on the best methods for instructing students on these topics. To receive a certificate to teach or supervise in any public school in Connecticut, a person must pass an examination on the effects of nicotine and tobacco use (US DHHS 1986e).

Compliance and Effects

Little is known about the level of compliance with these State regulations. A 1986 survey of a random sample of 2,000 school districts conducted by the National School Boards Association found that 61, 64, and 62 percent of school districts provide anti-smoking education in elementary school, middle or junior high school, and high school, respectively (NSBA 1987). The generalizability of the survey is limited by a low response rate (36 percent). It is unclear to what degree this instruction is voluntary or the result of a State requirement.

Even less is known about the content or quality of curricula developed to comply with government mandates. Evaluations of voluntary school-based smoking prevention programs (Chapter 6) suggest that they can be effective if done well. The extent to which government-mandated school education programs match these results is unknown. Consequently, it is impossible to determine the extent to which government-mandated school education has contributed to greater awareness by children of the health consequences of smoking or to reductions in the initiation of smoking.

TABLE 5.—States requiring school health education on tobacco use effects

State	School health education	In-service teacher training	Instruction required for teacher certification	Instructional material must be accurate	Other
Alabama	X	X			
Alaska	X				
Arizona	X				
California				X	
Connecticut	X	X	X		X[a]
Florida				X	X[b]
Georgia	X				
Idaho	X				
Illinois	X				
Indiana	X				
Iowa	X				
Massachusetts	X				
Michigan	X				
Minnesota			X		
Nebraska	X				
Ohio	X				
Oklahoma	X	X			
Oregon	X				
Utah	X				
Vermont	X				
Wisconsin	X				

[a]Connecticut law provides that no certificate to teach or supervise shall be granted to any person who has not passed a satisfactory examination on the effects of nicotine and tobacco. Conn. Gen. Stat. Ann., Section 10-145a (West Supp. 1964).

[b]Florida's Cancer Control and Research Act provides that proven causes of cancer, including smoking, should be publicized and should be the subject of educational programs for the prevention of cancer. Fla. Stat. Ann., Section 381.2712(2)(c) (West Supp. 1965).

SOURCE: US DHHS (1986e).

Broadcast Media

History

In 1949, the U.S. Federal Communications Commission (FCC) promulgated its Fairness Doctrine (FCC 1949). Under this doctrine, which the FCC repealed in August 1988, licensed broadcasters were obligated

> to encourage and implement the broadcast of all sides of controversial public issues over their facilities, over and beyond their obligation to make available on demand opportunities for the expression of opposing views (FCC 1987).

This meant that, as a condition of retaining the required license, broadcasters were required to air both sides of a controversial issue if one side was presented. Subsequent decisions by the FCC indicated that the Fairness Doctrine could require a station to grant free time, even when one viewpoint was presented under paid sponsorship. The FCC did not, however, require that a broadcaster provide equal time for opposing views; only a "reasonable opportunity" for the presentation of opposing views was required (Columbia Law Review 1967).

In January 1967, John Banzhaf, an attorney acting as a private citizen, petitioned the FCC to apply the Fairness Doctrine to cigarette advertising. On June 2, 1967, the Commission ruled that the doctrine applied to cigarette advertising on television and radio and required broadcasters who aired cigarette commercials to provide "a significant amount of time" to citizens who wished to point out that smoking "may be hazardous to the smoker's health" (FCC 1967). In a subsequent press interview, the FCC's chief counsel gave his informal opinion that a ratio of one antismoking message to three cigarette commercials seemed to him to constitute "a significant amount of time" (Whiteside 1971).

The ruling applying the Fairness Doctrine to cigarette advertising went into effect on July 1, 1967. Thereafter, broadcasters began to air an array of antismoking public service announcements (PSAs), developed primarily by voluntary health organizations and government health agencies (Whiteside 1971). The time "donated" for the antismoking spots amounted to approximately 75 million dollars (in 1970 dollars) per year from 1968 through 1970 (Lydon 1970). As discussed in the next section, subsequent Federal legislation, the Public Health Cigarette Smoking Act of 1969, banned cigarette advertising on television and radio, effective January 2, 1971. Once this occurred and cigarette ads were removed from radio and television, the Fairness Doctrine basis for requiring broadcasters to carry antismoking PSAs was eliminated. Antismoking messages then had to compete for public service advertising time donated by broadcasters. As a result, the frequency of the antismoking spots declined dramatically. According to Lewit, Coate, and Grossman (1981), the number of antismoking PSAs declined by almost 80 percent after 1970, relative to the number aired in 1969, and they were shown at times when youths in particular were not likely to be watching television.

Effectiveness

The antismoking messages mandated by the Fairness Doctrine might have been expected to increase public knowledge and change public attitudes about smoking. Indirectly, they might reduce smoking prevalence and tobacco consumption by stimulating cessation and retarding initiation. The degree to which the messages achieved these goals has been assessed by measuring trends in public beliefs concerning the health hazards of smoking, in smoking prevalence, and in cigarette sales before, during, and after the 1968–70 period. PSAs were only one of a number of societal influences on smoking during that period. Because of the broad reach of the mass media, it is impossible to control for these concurrent influences by examining a group that was not exposed to PSAs. Consequently, changes in these indices cannot be unequivocally attributed to the presence of PSAs. Nonetheless, they offer strong circumstantial evidence for an effect of the PSA campaign.

Survey data indicate that PSAs were in fact seen and recalled by large numbers of Americans. O'Keefe (1971) surveyed 621 students below 21 years of age and 300 adults in Central Florida. Ninety percent of the sample recalled seeing at least one antismoking PSA, and about half of them were able to recall a specific commercial. When asked about the effect of PSAs on their own smoking behavior, 32 percent of smokers reported that they had cut down, 37 percent said they thought more about the effects of smoking than before, and 11 percent said they stopped smoking temporarily as a result of the commercials. This study, based on the self-reported smoking behavior of a small sample, does not provide definitive evidence for an effect of PSAs on knowledge or cigarette consumption.

Analysis of trends in national survey data provides a stronger quality of evidence for the effects of PSAs on knowledge or behavior. National survey data collected before, during, and after the 1968–70 period show consistent but small increases in public knowledge of the health hazards of smoking (see Chapter 4). According to the Adult Use of Tobacco Surveys (AUTSs), the proportion of adults who believed that smoking is hazardous to health was already high before the airing of PSAs. It increased slightly during and after the period when PSAs were shown, from 85 to 87 to 90 percent in 1966, 1970, and 1975, respectively. Similar trends were seen for public beliefs concerning the causal relationship between smoking and specific diseases, including lung cancer, heart disease, and chronic obstructive lung disease (Chapter 4). One might expect that the personal and emotional messages in many of the PSAs (Whiteside 1971) would have a particularly salient effect on personalized acceptance of health risks from smoking (Chapter 4). AUTS data show a larger increase in this factor, coincident with the PSAs. The percentage of smokers who were concerned about the effects of smoking on their own health increased from 47 percent in 1966, before the Fairness Doctrine, to 69 and 68 percent in 1970 and 1975, respectively. One must be cautious in attributing these changes solely to the PSA campaign, because increases in public knowledge sometimes continued after the campaign ended and because other informational activities, such as cigarette warning labels, occurred concurrently in both the public and private sectors.

The effect of PSAs on smoking behavior has been assessed by analyzing trends in cigarette sales and smoking prevalence. Analyses of temporal trends in tobacco consumption, as measured by cigarette sales, provide evidence for an effect of PSAs in restraining smoking, at least temporarily. For the 3-year periods before (1965–67), during (1968–70), and after (1971–73) the Fairness Doctrine PSAs, per capita cigarette sales increased by 2.0 percent, decreased by 6.9 percent, and increased by 4.1 percent, respectively (Chapter 5). Warner (1977) compared actual sales figures for the Fairness Doctrine period to projected sales figures (for the same years) based on the trend in sales during the period 1947–67. He predicted that in the absence of PSAs and subsequent publicity, consumption would have been 19.5 percent higher than it actually was by 1975. In a regression analysis of the effects of both cigarette ads and the Fairness Doctrine PSAs, Hamilton (1972) found that the antismoking messages retarded per capita cigarette consumption by 530.7 cigarettes per year, while the cigarette ads boosted it by 95.0 per year. Schneider, Klein, and Murphy (1981) concluded that the PSAs reduced per capita tobacco consumption by 5 percent. Findings from these and related studies are reviewed in Chapter 8.

If PSAs had motivated large numbers of smokers to quit smoking, one would expect to have observed a decline in the prevalence of cigarette smoking, as well as in tobacco consumption, during the period when they were shown. Prevalence data have some limits compared with cigarette consumption data. Estimates of smoking prevalence are based on individuals' self-reported behavior in national surveys, which is a less objective measure than consumption estimates based on sales data. Furthermore, data on prevalence are collected less frequently than are sales data, making prevalence a less sensitive index of short-term effects. Data on the self-reported prevalence of cigarette smoking from 1965–85 show a highly consistent linear trend downward during the entire period (Chapter 5). These data do not provide evidence for an independent effect of the PSA campaign on overall smoking prevalence and contrast with the cigarette consumption data cited above. However, Lewit, Coate, and Grossman (1981), who analyzed the effect of PSAs on the smoking prevalence of teenagers, reported an effect in that age group. They found that the teenage smoking rate was 3.0 percentage points lower during the Fairness Doctrine period than during the 16-month period prior to the Doctrine; most of this effect occurred during the time when PSAs were shown.

Warner (1978) compared cigarette sales data to self-reported cigarette consumption for the years 1964–75. He found that the ratio of self-reported cigarette consumption to cigarette sales ("consumption ratio") decreased from a level of 72 and 73 percent in 1964 and 1966, to 66 percent in 1970, and to 64 percent in 1975. The decrease between 1966 and 1970, years spanning the Fairness Doctrine period, was statistically significant. Between 1966 and 1970, actual aggregate sales dropped 1 percent, while reported consumption dropped 9.5 percent. One explanation for this decline is a greater underreporting of current smoking because of growing awareness of the health hazards of smoking and the declining social acceptability of smoking (Chapter 5). Warner suggested that the Fairness Doctrine PSAs, by causing changes in knowledge and attitudes, may have been responsible for increased underreporting. More recent data from 1974–85 show that the consumption ratio has remained stable at approximately 72 percent, despite further reductions in the social acceptability of smoking (Chapter

5). As mentioned in Chapter 5, the decrease in the consumption ratio reported by Warner may be related to the fact that the self-reported data for 1970 and 1975 were collected by telephone surveys, while the 1964 and 1966 data were collected by in-person interviews; the latter technique generally provides slightly higher smoking prevalence estimates than do telephone surveys.

In summary, both per capita cigarette consumption changes and regression studies comparing actual cigarette sales to projected sales based on prior trends are consistent with the conclusion that the Fairness Doctrine PSAs affected smoking behavior, at least in the short term. Changes in public knowledge about the health effects of smoking as assessed in national surveys also occurred during the period PSAs were aired. Because of other social influences on smoking during this period, it is impossible to attribute changes in cigarette consumption or public knowledge solely to the airing of PSAs. However, as described further in Chapter 8, they were a prominent component of antismoking activities, which in the aggregate had marked effects on smoking prevalence and tobacco consumption in the 25 years since the release of the 1964 Surgeon General's Report. It is unclear whether and to what degree any short-term effects could have been sustained with an ongoing campaign. If PSAs had continued, it is possible that their short-term effects could have been sustained only with the types of message variation, pulsed media placement patterns, and ongoing communications measurement

TABLE 6.—Cigarette advertising and promotional expenditures, 1970–86 ($ millions)

Year	Advertising	Promotional	Total	Total in constant (1986) dollars	Advertising as percentage of total
1970	314.7	46.3	361.0	1019.4	87.2
1971	251.6	NA	NA	NA	NA
1972	257.6	NA	NA	NA	NA
1973	247.5	NA	NA	NA	NA
1974	306.8	NA	NA	NA	NA
1975	366.2	125.1	491.3	1000.9	74.5
1976	430.0	209.1	639.1	1231.0	67.3
1977	552.0	247.5	799.5	1446.6	69.0
1978	600.5	274.5	875.0	1470.6	68.6
1979	749.0	334.4	1083.4	1636.6	69.1
1980	829.9	412.4	1242.3	1653.0	66.8
1981	998.3	549.4	1547.7	1865.9	64.5
1982	1040.1	753.7	1793.8	2037.6	58.0
1983	1081.0	819.8	1900.8	2091.9	56.9
1984	1097.5	997.7	2095.2	2211.7	52.2
1985	1075.0	1401.4	2476.4	2524.1	43.4
1986	931.8	1450.6	2382.4	2382.4	39.1

NOTE: NA, not available.
SOURCE: Warner (1986b); Federal Trade Commission (1988b).

and tracking characteristics of ongoing national advertising campaigns (Aaker and Meyers 1987), including those of the cigarette companies themselves.

Restrictions on Tobacco Advertising and Promotion

Cigarettes are one of the most heavily marketed consumer products in the United States (FTC 1981b; Davis 1987). Cigarette advertising and promotional expenditures totaled 2.4 billion dollars in 1986 (FTC 1988b). In both actual and constant dollars, these expenditures increased consistently between 1975 and 1985 but fell slightly in 1986, the last year for which data are available (Table 6). A study reviewing 1985 data found that cigarettes were the most heavily advertised category of products in the outdoor media (e.g., billboards), the second most heavily advertised category in magazines (after passenger cars), and the third most heavily advertised subcategory in newspapers (after passenger cars and airlines) (Davis 1987). All six of the major cigarette manufacturers were included among the 100 companies with the highest advertising expenditures in 1985 (Davis 1987). According to FTC reports to Congress for the years 1982 and 1983, the major advertising themes associated cigarette smoking with high-style living, healthy activities, and economic, social, and professional success (FTC 1985).

Tobacco advertising includes both traditional advertising (in newspapers and magazines, on billboards, and in transit facilities) and promotional activities. Promotional activities are diverse and include the distribution of free product samples, coupons for price reductions, and offers for discounted products (often bearing the name of the cigarette brand). Promotional activities also encompass industry sponsorship of cultural, sporting, and entertainment events, and sponsorship of community or political organizations. Incentives paid to distributors or retailers are another form of tobacco promotion. Over the past decade, the balance of expenditures has shifted from traditional advertising to promotional activities (Davis 1987), so that by 1986, promotional expenditures accounted for 60 percent of the tobacco marketing dollar, compared with only 25 percent of the total in 1975 (FTC 1988b) (Table 6).

This Section reviews previous, current, and proposed government policies to regulate tobacco advertising and promotion. It considers the central public health issue—whether advertising and promotion increase tobacco consumption—and reviews available evidence on this question. The focus of this review is on cigarette advertising and promotion because cigarettes account for the vast majority of both tobacco use and advertising/promotional expenditures. The effects of advertising for other tobacco products have not often been studied. The discussion includes coverage of the smaller body of information about promotional activities beyond traditional advertising because of their growing importance in tobacco marketing.

Effects of Tobacco Advertising and Promotion

Public health concern about tobacco advertising and promotion is based on the premise that these activities encourage the initiation of smoking and stimulate tobacco consumption, especially by children, while retarding cessation efforts, particularly by adults. It has been suggested that ads promoting low-tar and -nicotine cigarettes may